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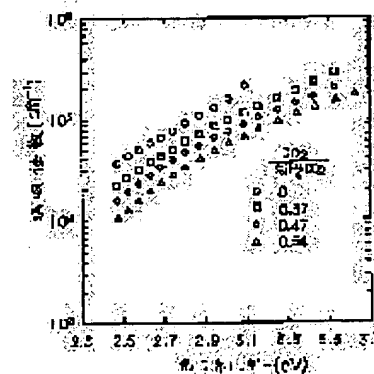
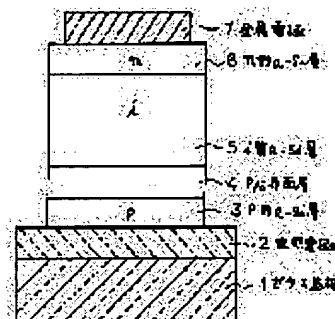
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## (54) FORMATION OF SILICON OXIDE SEMICONDUCTOR FILM

### (57)Abstract:

**PURPOSE:** To industrially form a silicon oxide semiconductor film having a low light absorption coefficient and high photoconductivity by resolving a gaseous raw material which contains at least SiH<sub>4</sub>, CO<sub>2</sub>, and H<sub>2</sub> in a state where CO<sub>2</sub>/(SiH<sub>4</sub>+CO<sub>2</sub>) becomes a specific value.

**CONSTITUTION:** In the method which is used for forming an SiO semiconductor film composed of a-SiO<sub>2</sub> containing a microcrystalline layer of Si, the SiO semiconductor film is formed by resolving a gaseous raw material which contains at least SiH<sub>4</sub>, CO<sub>2</sub>, and H<sub>2</sub> in a state where CO<sub>2</sub>/(SiH<sub>4</sub>+CO<sub>2</sub>) becomes  $\leq 0.6$ . At the time of decomposing the mixed gas, it is effective to generate glow discharge in the gas at a high-frequency power density of  $\geq 40\text{mW/cm}^2$ . The formed SiO semiconductor film has a absorption coefficient  $\leq 106\text{cm}^{-1}$  against light having a wavelength of  $\geq 340\text{nm}$  and photoconductivity of  $\geq 10^{-6}\text{S/cm}$ . In addition, it is effective, to use a p-type a-SiO layer 3 or n-type a-Si layer 6 obtained by mixing a doping gas with the gaseous raw material as the window layer of a solar battery.



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